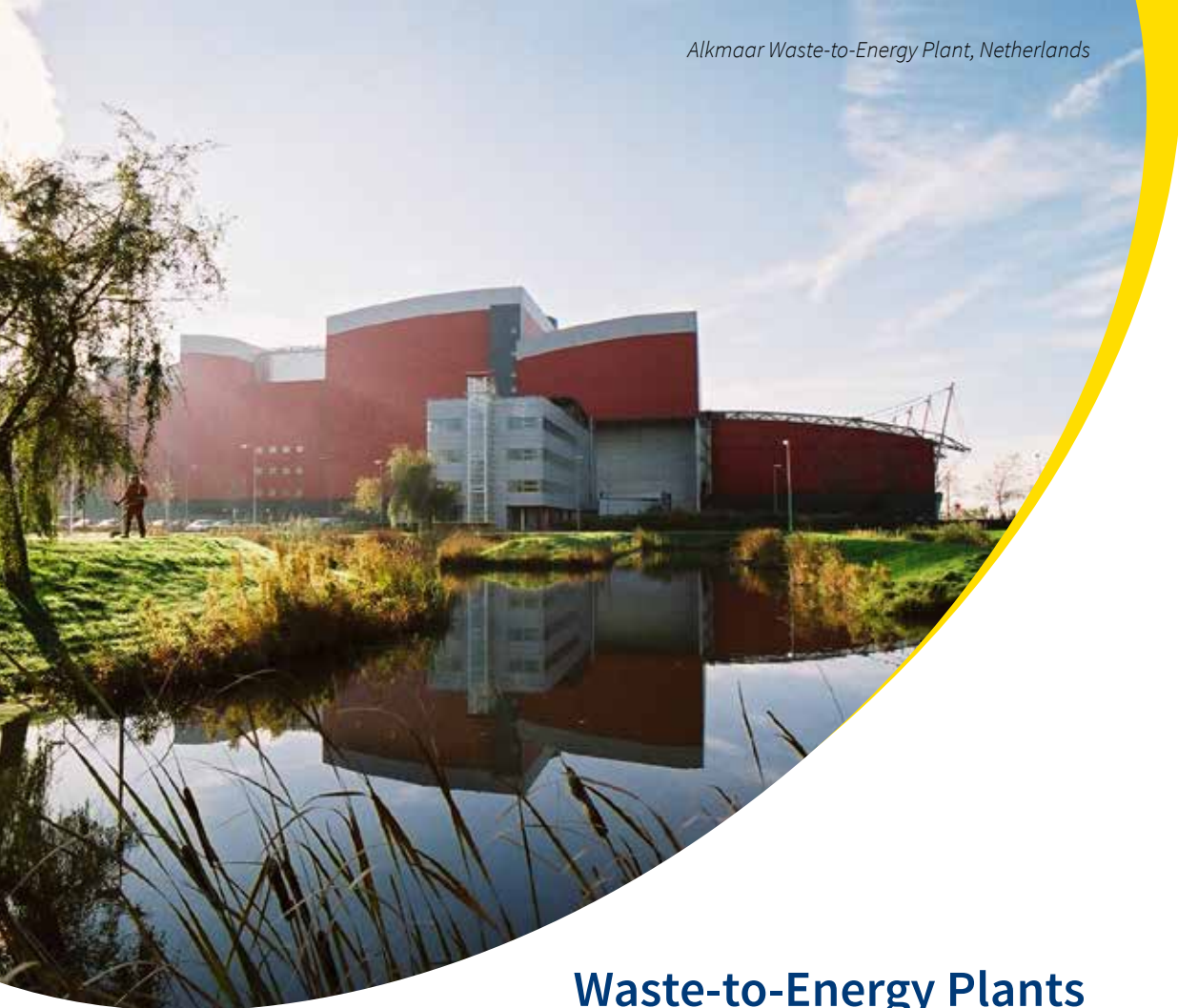


# Heating and lighting from waste



Confederation of European  
Waste-to-Energy Plants



**Waste-to-Energy Plants  
are an essential part of both  
the waste management and  
energy supply network.**

## CEWEP

CEWEP is the European umbrella association of the owners and operators of Waste-to-Energy Plants, representing about 400 plants from 22 countries. They make up more than 80% of the Waste-to-Energy capacity in Europe.



*Turin Waste-to-Energy plant, Italy*

**Waste-to-Energy Plants (waste incineration with energy recovery) thermally treat residual household and similar waste that cannot otherwise be reused or recycled in an environmentally or economically beneficial way, and generate energy from it.**

Recycling and Waste-to-Energy are complementary waste treatment methods.

Together they are instrumental in order to **divert waste from landfills** and **reduce Greenhouse gas emissions**. This avoids the creation of methane in landfills, a potent greenhouse gas (25 times more significant in mass than CO<sub>2</sub>).

Waste-to-Energy Plants also help to **ensure quality recycling** by treating the waste that is not good enough for recycling.

Membership of CEWEP underlines a Waste-to-Energy Plant's **commitment** to ensuring **high environmental standards**, achieving **low emissions** by operating Best Available Techniques and maintaining state of the art energy production from not otherwise reusable or recyclable materials.

The plants represented by CEWEP are operated both by municipalities and private companies. Members are mostly national associations, but also individual plants.



**Waste-to-Energy is a key component to achieve a sustainable circular economy in Europe.**

## Waste-to-Energy Contributing to Resource Efficiency

In cooperation  
with recycling,  
Waste-to-Energy Plants  
help Member States  
divert waste that is not  
good enough for recycling  
from landfilling and use  
it to generate energy.

*Secondary aggregates  
from bottom ash*



## High Quality Recycling goes Hand in Hand with Waste-to-Energy.

Waste-to-Energy is a hygienic means of treating waste (destroying viruses and bacteria), which prevents polluted or degraded materials from entering the recycling-process and then into new products.

The **combustion process cleans and separates metals and inerts from mixed waste**, which could not otherwise be recycled. As a result **further recycling** of these metals **is possible**.

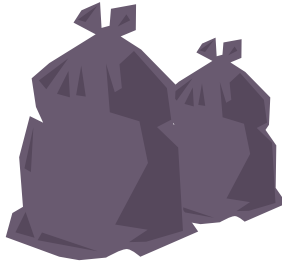
For example, the remaining ferrous and non-ferrous metals in the waste can be extracted from the bottom ash, the residues from the combustion of waste, and recycled into new products such as aluminium castings for the automotive industry. Other remaining minerals can be used as secondary aggregates, e.g. in road construction or in building products.

Due to the extra quantities of materials recovered from bottom ash **Waste-to-Energy Plants contribute further to achieving a recycling society** and help to improve Europe's Resource Efficiency, using unavoidable waste as a valuable resource wherever possible.



# WASTE-TO-ENERGY IN DAILY LIFE

An average family produces about 10 kg of residual waste per week, after the recyclable waste has been separated.



With 10 kg of residual waste ...



... you can shower  
**7 times**  
5 minutes each



... you can power your laptop  
**for 3 hours per day**  
for 2 months



... enough heat can be  
produced to warm your  
home for **at least 8 hours**



## Waste-to-Energy is a cost effective local source of energy

Helping to ensure security of energy supply

### Sustainable Energy from Waste

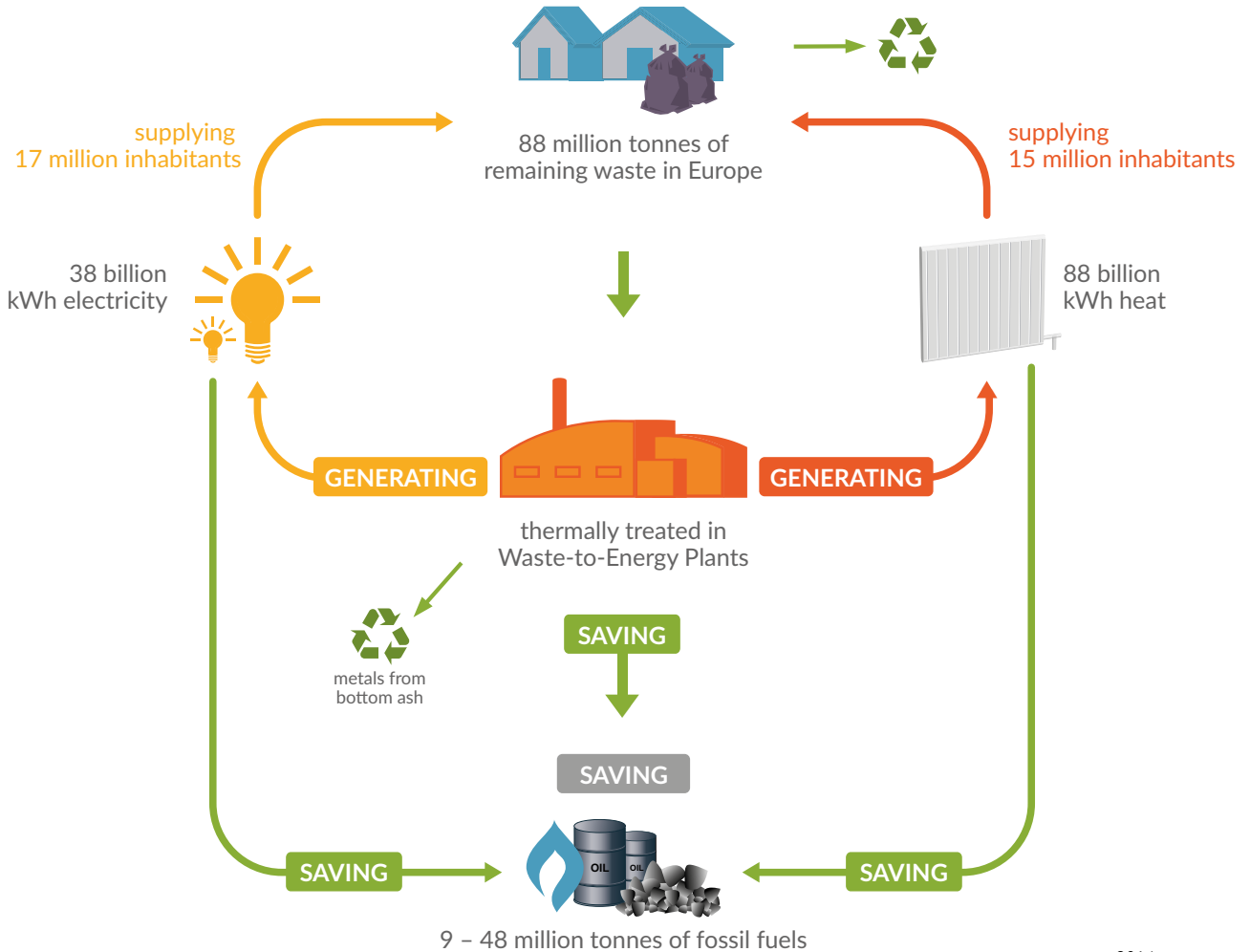
Waste-to-Energy Plants produce electricity, district heating or cooling for homes and businesses, and steam for industrial processes.

The heat and electricity delivered to houses and industry replaces fossil fuels used by conventional power plants. **Waste-to-Energy Plants therefore help to reduce CO<sub>2</sub> emissions and dependence on fossil fuel imports.**

Also, **about 50% of the energy** produced by Waste-to-Energy Plants **is renewable**. EU legislation considers the biodegradable fraction of municipal and industrial waste as biomass, and thereby a source of renewable energy.

To optimize the Waste-to-Energy process CEWEP members not only **invest** heavily in **sophisticated filtering** devices to minimise the emissions into the atmosphere, but also in **increasing the energy efficiency** of the plant so that it can generate as much sustainable energy from the waste as possible.

# WASTE-TO-ENERGY CYCLE





## Waste-to-Energy is a reliable and secure source of energy

Waste-to-Energy Plants operate 24 hours a day, 7 days a week, 365 days per year. They supply reliable base-load energy to the electricity grid.

On the basis that about 88 million tonnes of household and similar waste that remains after waste prevention, reuse and recycling, was treated in Waste-to-Energy Plants across Europe in 2014 (see map on last page), 38 billion kWh of electricity and 88 billion kWh of heat can be generated.

Then between 9 - 48 million tonnes of fossil fuels (gas, oil, hard coal and lignite) can be substituted annually, emitting 24 – 48 million tonnes of CO<sub>2</sub>. Replacing these fossil fuels, **Waste-to-Energy Plants can supply annually about 17 million inhabitants with electricity and 15 million inhabitants with heat.**

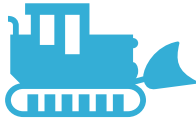
This is the equivalent to the entire population of Sweden, Lithuania and Latvia that can be supplied with electricity and heat throughout the year.



*Filborna plant, Sweden,  
Photo: Timo Julku/RKLM*



**In order to achieve energy and resource efficiency in a circular economy, CEWEP aims at:**



## REDUCING DEPENDENCE ON LANDFILLS

CEWEP highlights that **recycling and energy recovery are complementary** options in order to divert waste from landfilling. To avoid wasting natural resources and to reduce landfill methane emissions, combustible waste that is not suitable for recycling should not be landfilled, but **treated in a more sustainable way** in Waste-to-Energy Plants that produce energy from the waste.

## QUALITY RECYCLING

Waste-to-Energy **prevents dirty or contaminated waste from entering the recycling chain** and adversely impacting quality. If waste is not good enough for recycling (e.g. degraded after being recycled several times) it should be turned into energy by Waste-to-Energy Plants. From the bottom ash metals and other materials can be recycled.



## BOOSTING ENERGY EFFICIENCY

Waste-to-Energy Plants (most of them Combined Heat & Power) efficiently recover energy from residual waste and provide affordable and secure power, heat or process steam to neighbouring houses, public services and industries.

There is a major opportunity to use even more energy from waste in the form of heat, if the appropriate linking of heat (or process steam) customers to Waste-to-Energy Plants would be encouraged.

Therefore we need drivers for **improving infrastructure for district heating** and cooling in addition to incentives to maximize electricity production from waste.

The energy gains from Waste-to-Energy can be increased by improving access to power grids for Waste-to-Energy Plants.

**Waste-to-Energy Plants generate reliable base-load energy, while at the same time providing vital waste services.**





**CEWEP: a platform for  
the exchange of experience  
and good practice.**

# What CEWEP does



## A VOICE FOR WASTE-TO-ENERGY

**CEWEP focuses on contributing to European environmental and energy legislation that can affect Waste-to-Energy Plants through:**

- Close and permanent contact with the European Institutions
- Careful analysis and proactive contributions to EU environment and energy policy
- Participation in on-going studies (UNEP, OECD and EU)
- Undertaking our own studies, e.g. based on Life Cycle Thinking, composition and recycling of bottom ash etc.

CEWEP organises plant visits, congresses, workshops and debates, often in the European Parliament, in order to inform decision makers and the public about Waste-to-Energy.



## PROMOTE PUBLIC PARTICIPATION

**CEWEP provides the public with information** on emission levels, energy efficiency, on the technology of Waste-to-Energy and the plants' contribution to climate protection in order to raise citizens' awareness of the role Waste-to-Energy plays in sustainable resource management.



## PROMOTE EXCHANGE OF EXPERIENCE, RESEARCH AND DEVELOPMENT

**CEWEP serves as a platform for the exchange of experience between members**, advances scientific, technical and practical aspects of Waste-to-Energy and promotes research, development and dissemination of knowledge towards sustainable waste management and energy recovery.

On research and scientific issues CEWEP is advised by a Scientific and Technical Council, comprised of eminent professors and CEWEP senior scientists.



## SERVICES TO MEMBERS

We keep our **members up-to date** about all relevant EU legislative developments, studies etc.

Members **actively influence CEWEP's statements** that are presented to decision makers.

Additionally they receive regular **e-bulletins** and a detailed (quarterly) **EU-Report** on all relevant environmental and energy issues.

In the **Working Groups** members exchange valuable experience and provide the CEWEP Presidency and General Assembly with recommendations.

The following Working Groups are active:

- Energy
- Residues
- Communication
- Best Available Techniques REference documents (BREFs), e.g. on waste treatment and waste incineration
- As well as ad hoc Working Groups based on specific needs, such as Life Cycle Studies.

# Members

## ANDORRA

- Centre de Tractment de Residus d'Andorra, SA  
[www.ctra.ad](http://www.ctra.ad)

## AUSTRIA

- Wien Energie GmbH  
[www.wienenergie.at](http://www.wienenergie.at)
- KRV Arnoldstein  
Kärntner Restmüllverwertungs GmbH  
[www.krv.co.at](http://www.krv.co.at)
- EVN Abfallverwertung  
Niederösterreich Gesellschaft m.b.H.  
[www.evn-abfallverwertung.at](http://www.evn-abfallverwertung.at)

## BELGIUM

- Belgian Waste-to-Energy (BW2E)  
[www.bw2e.be](http://www.bw2e.be)

## CZECH REPUBLIC

- Pražské služby, a.s.  
[www.psas.cz](http://www.psas.cz)
- SAKO Brno, a.s.  
[www.sako.cz](http://www.sako.cz)
- Termizo, a.s.  
[www.termizo.cz](http://www.termizo.cz)
- Sdružení STEO  
[www.steo.cz](http://www.steo.cz)

## DENMARK

- Danish Waste Association  
[www.danskaftaldsforening.dk](http://www.danskaftaldsforening.dk)

## FINLAND

- Finnish Solid Waste Association  
[www.jly.fi](http://www.jly.fi)
- Ekokem Oy Ab  
[www.ekokem.fi](http://www.ekokem.fi)

## FRANCE

- SVDU  
[www.incineration.org](http://www.incineration.org)

- Séché Environnement  
[www.groupe-seche.com](http://www.groupe-seche.com)
- Savoie Déchets  
[www.savoie-dechets.com](http://www.savoie-dechets.com)

## GERMANY

- ITAD  
Interessengemeinschaft  
der thermischen  
Abfallbehandlungsanlagen in  
Deutschland e.V.  
[www.itad.de](http://www.itad.de)

## HUNGARY

- FKF RT  
Fővárosi Közterület-fenntartó Rt.  
[www.fkf.hu](http://www.fkf.hu)

## IRELAND

- CEWEP Ireland  
[www.cewepireland.com](http://www.cewepireland.com)

## ITALY

- Utilitalia  
[www.utilitalia.it](http://www.utilitalia.it)

## LITHUANIA

- Fortum Klaipėda  
[www.fortum.com/countries/lt/pages/default.aspx](http://www.fortum.com/countries/lt/pages/default.aspx)

## LUXEMBOURG

- SIDOR  
<http://sidor.lu>

## THE NETHERLANDS

- Dutch Waste Management  
Association  
[www.verenigingafvalbedrijven.nl](http://www.verenigingafvalbedrijven.nl) and  
[www.wastematters.eu](http://www.wastematters.eu)

## NORWAY

- Avfall Norge  
[www.avfallnorge.no](http://www.avfallnorge.no)

## PORTUGAL

- AVALER  
[www.aval.pt](http://www.aval.pt)

## SPAIN

- AEVERSU  
[www.aeversu.org](http://www.aeversu.org)
- SAICA  
[www.saica.com](http://www.saica.com)

## SWEDEN

- Avfall Sverige  
[www.avfallsverige.se](http://www.avfallsverige.se)

## SWITZERLAND

- VBSA  
Verband der Betriebsleiter  
und Betreiber Schweizerischer  
Abfallbehandlungsanlagen  
[www.vbsa.ch](http://www.vbsa.ch)

## TURKEY

- Eren Holding A.Ş. (Associate  
member)  
[www.erenholding.com.tr/en/home](http://www.erenholding.com.tr/en/home)

## UK

- FCC Environment  
[www.fccenvironment.co.uk](http://www.fccenvironment.co.uk)
- URBASER  
[www.urbaser.com](http://www.urbaser.com)

## USA

- Energy Answers International  
[www.energyanswers.com](http://www.energyanswers.com)

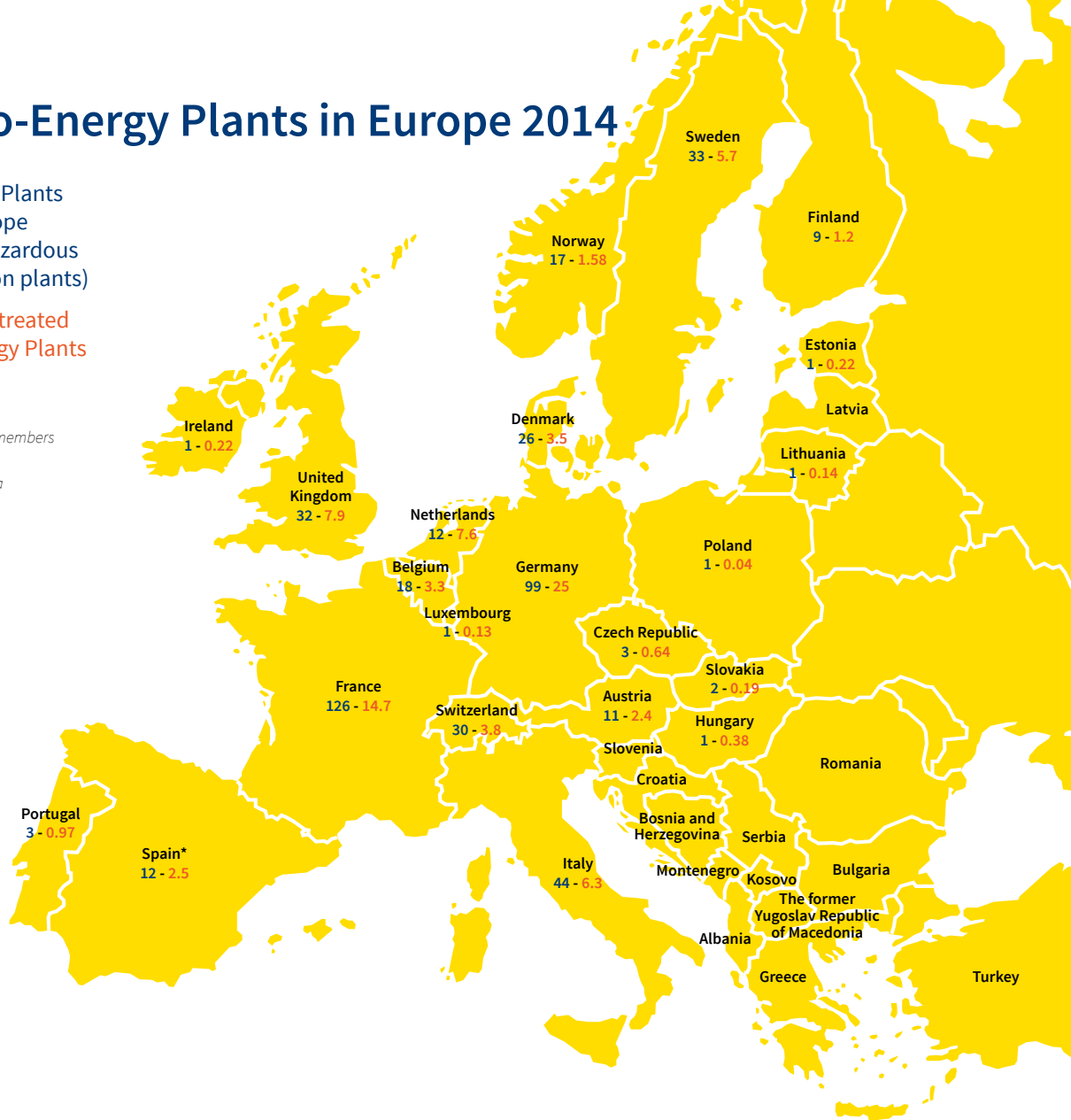
# Waste-to-Energy Plants in Europe 2014

Waste-to-Energy Plants  
operating in Europe  
(not including hazardous  
waste incineration plants)

Waste thermally treated  
in Waste-to-Energy Plants  
in million tonnes

Data supplied by CEWEP members  
and national sources

\* Includes plant in Andorra



Confederation of European  
Waste-to-Energy Plants

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